TECHNOLOGY NEEDS/OPPORTUNITIES STATEMENT

TREATMENT OF CH TRUW LIQUID WASTES CONTAMINATED WITH PCBs AND IGNITABLES

Identification No.: RL-MW06
Date: October 2001

Program: Waste Management
OPS Office/Site: Richland Operations Office/Hanford Site
PBS No.: RL-CP02
Waste Stream: 3490 – M-91 Feed
TSD Title: 206 – M-91 Facility
Operable Unit (if applicable): N/A
Waste Management Unit (if applicable): N/A
Facility: Future M-91 Facility.

Priority Rating:

This entry addresses the "Accelerated Cleanup: Paths to Closure (ACPC)" priority:

____ 1. Critical to the success of the ACPC.
_X_ 2. Provides substantial benefit to ACPC projects (e.g., moderate to high life-cycle cost savings or risk reduction, increased likelihood of compliance, increased assurance to avoid schedule delays).
____ 3. Provides opportunities for significant, but lower cost savings or risk reduction, and may reduce uncertainty in ACPC project success.

Need Title: Treatment of CH TRUW Liquid Wastes Contaminated With PCBs and Ignitables.

Need/Opportunity Category: *Technology Need* -- There is no existing or currently identified technology capable of solving the Site's problem (i.e., technology gap exists, no baseline approach has been identified).

Need Description: Develop a technology to treat organic liquid TRUW (mostly hydraulic fluids) to destroy polychlorinated biphenyls (PCB), remove the ignitable characteristic, and safely contain transuranic radionuclides. Adapting existing or emerging thermal or chemical organic destruction technologies to handle TRUW may require substantial development.

Schedule Requirements:

Earliest Date Required: 2007

Latest Date Required: 2013

Technology needs to be established between end of FY 2007 (conceptual design start) and 2013 (start of operations), to support the M-91 facility baseline.

***Problem Description*:** The WIPP Waste Acceptance Criteria prohibits the disposal of TRUW that contains either PCBs or ignitable characteristics (D001) and therefore waste with these characteristics must be processed to remove the PCBs or ignitables before packaging and transporting to WIPP. The bulk of this waste is PCB-contaminated hydraulic fluids generated in 1989 from the Plutonium Finishing Plant.

If the WIPP receives an exemption for disposal of PCB-containing waste, then the need for treatment for PCBs will be eliminated. However, the need to remove any ignitable characteristics will remain.

Potential Life-Cycle Cost Savings of Need (in $000s) and Cost Savings Explanation: No measurable cost savings are expected. This need is to establish method to treat a waste stream where no method currently exists

Benefit to the Project Baseline of Filling Need: Provide treatment method for PCBs to allow disposal.

Relevant PBS Milestone: A2G-08-109 M-91-15 Complete Acquisition of Facilities and Initiate Treatment of RH and Large Container (CH) LLMW

Functional Performance Requirements: The technology must be able to remove the ignitable characteristic from ignitable waste and must destroy PCBs to 99.9999% destruction efficiency and contain TRUW radionuclides. The technology must be readily acceptable by the regulators (as equivalent to incineration) and the public.

***Work Breakdown Structure (WBS) No.*:**	***TIP No.:***
1.2.2	N/A

***Justification For Need*:**

Technical: No treatment capability exists for TRUW ignitable or PCB waste.

Regulatory: WIPP Waste Acceptance Criteria does not allow PCBs and ignitables. The M-91 Milestone required submittal of a RH TRUW Project Management Plan by June 2000. M-91 also requires that RH TRUW treatment be initiated by June 2005.

Environmental Safety & Health: There are occupational and health concerns associated with storing and handling the TRU waste.

Cultural/Stakeholder Concerns: Complete the cleanup of the Hanford Site, including small difficult waste streams.

Other: None identified.

Current Baseline Technology: At present there is no baseline plan to treat this waste. Likely technologies will be thermal treatment or an alternative organic destruction technique.

End-User: Waste Management.

Site Technical Point-of-Contact: Dale Black, Fluor Hanford, Inc. (FH), (509) 376-8458, Fax (509) 372-1441, Dale_G_Black@rl.gov.

DOE End-User/Representative Point-of-Contact: Kevin Leary, DOE-RL, (509) 373-7285, Fax (509) 372-1926, Kevin_D_Leary@rl.gov.

Waste volume, m^3	Current: 80 m^3 Projected (5 yrs.): 1.9 m^3
Waste form	Mostly PCB-contaminated hydraulic fluids
Waste stream I.D.	3490
Contaminants and co-contaminants	Alpha
Function of technology	Destroy PCBs and remove ignitables
Source category	Various Hanford Site programs